NATIONAL SCIENTIFIC BALLOON FACILITY
LONG DURATION BALLOON FLIGHT
FY '06 APPLICATION FORM

Please complete this form in its entirety and return to:

Attn: LDB Flight Request
National Scientific Balloon Facility
P.O. Box 319: FM 3224
Palestine, Texas 75802-0319

Telephone: 903 729 0271
Fax: 903 723 8056

This Flight Request form is for users requesting LDB (Long Duration Balloon) Flights only. If you anticipate a conventional flight requirement in addition to a LDB flight, please provide complete details for your conventional support on the standard NSBF Conventional Flight Application form.

Questions? Direct inquiries concerning LDB support to:

Bill Stepp
Operations Manager
Tel. (903) 723 8035
Fax (903) 723 8056
E-mail: Bill.Stepp@master.nsbf.nasa.gov

Bryan D. Stilwell
LDB Group Supervisor
Tel. (903) 723-8097
Fax (903) 723-8082
E-mail: stilwell@master.nsbf.nasa.gov

---

1. Principal Scientific Experimenter:

(Name)

(Organization)

(Address)

(City) (State) (Country) (Postal Code)

(Telephone) (Fax)

(E-mail Address)

2. Co-Investigator (Please list the Co-Investigator who will have primary responsibility on this flight):

(Name)

(Organization)

(Address)

(City) (State) (Country) (Postal Code)

(Telephone) (Fax)

(E-mail Address)

3. Project Officer or Delegate familiar with engineering aspects of experiment:

(Name)

(Organization)

(Address)

(City) (State) (Country) (Postal Code)

(Telephone) (Fax)

(E-mail Address)

4. Source of Funding / Research Grant: _____

5. Number of Flights: _____ Dates: _____

6. Launch Locations: _____

7. Dimensions of Science Payload: _____ Weight: _____
(Enclose Drawings or Photos if Available) **(Science Only)**

8. Desired Float Altitude: Desired Float Duration

9. Describe minimum altitude requirement, altitude stability, ascent/descent rate requirements, and any other particular altitude requirements you may have:

_____

10. NSBF normally provides steel shot as ballast. Please indicate your preference if you desire other than steel ballast: (STEEL / GLASS)

11. List any restrictions on the proximity of the science payload to other equipment, electronics, ballast, or to the balloon. List any special balloon design specifications that you are aware of, e.g. no radar reflective tape, attached ducts, minimum polypowder lubrication, etc.

_____

12. Has this payload been flown before by the NSBF? (YES / NO) (Note: New payloads require a “test flight” prior to integration for a LDB mission.)

Launch Location(s) _____
Date(s) _____

13. Are other experimenters participating with you in the flight(s) covered by this request? (YES / NO) Please provide their names and organizations:

Name	Organization

If this is a cooperative program, describe each party's degree of involvement:

Name	Involvement

14. Please provide names of all participants in your group who will be supporting the flight. This list must include all personnel at the launch site. In case of campaigns outside the United States, the NSBF and NASA are required to inform the host country about the nationality of all campaign participants

.

Name	Citizenship	Name	Citizenship

Non U.S. citizens will not be allowed on any launch site without prior approval. Please provide the following for each non U.S. citizen:

a. Birthplace
b. Date of Birth
c. Passport Number
d. Country of Citizenship

15. LDB payloads require pre-deployment integration and testing with all flight systems in the "FULL UP" mode to include LDB support systems and Science instruments, electronic systems and any flight computer software. All gondola fabrication must be completed at this time as well. All pre-deployment integration and testing is normally performed at the NSBF facility in Palestine, Texas during July for upcoming Antarctica flights and during March for upcoming Fairbanks flights. Please delineate the location, a.) Pre-deployment Integration or b.) Launch Site when answering the following:

Gases: List the quantity and type of gases that you wish the NSBF to order in support of your program. Refer to enclosure 2 for specific instructions.

Palestine: _____

_____

Launch Site: _____

_____

_____

Radioactive Materials or Lasers: Will you be using radioactive material or lasers in flight? (YES / NO) ; in ground support? (YES / NO) ; in calibration? (YES / NO).

If yes, list radioactive sources / lasers to be used to include their maximum activity / wattage:

Location	Radioactive Source	Max Activity Wattage
Palestine:		
Launch Site:		

Expendables: Other than those directly required by the NSBF for its flight support, expendables must be paid for directly by the experimenter's group or from monies transferred to NASA and made available to the NSBF as described in Enclosure 2. The NSBF will assist in determining whether these items are considered routine support. List those items which you expect NSBF to provide for you:

Palestine: _____

_____

Launch Site: _____

_____

Services: The NSBF has a machine shop and environmental test facilities which can be made available for your use during the pre-deployment integration. Such services are limited or non-existent at the launch site. List any such services you require:

_____

AC Power Requirements: List your AC Power Requirements to include voltage, phase, line frequency, and nominal current. Please identify peak current loads you may impose.

Palestine: _____

_____

Launch Site: _____

_____

Work Space Requirement: Please list your work space requirements. (Please note such things as hoists, Internet connects, etc.)

Palestine: _____

_____

Launch Site: _____

_____

16. Do you anticipate not having any portion of your experiment completed and in "flight ready" mode at the end of the pre-deployment integration? Are there requirements which preclude having everything

assembled due to the nature of the instrument (e.g. emulsions prepared after scheduled pre-deployment integration and shipped directly to launch site for final installation before launch)? Please explain:

17. Do you require any portion of your experiment to be shipped anywhere other than directly to the launch site once pre-deployment integration is completed? Please explain:

18. Briefly describe the scientific experiment and its objectives in layman terms:

19. Do you plan to fly a pointing rotator / free swivel? (YES / NO)

    Please describe your pointing requirements to include the direction of pointing and duty cycle of pointing for each of your observations or reason for a swivel requirement:

20. Has this rotator / swivel been previously flown? (YES / NO)

    When was it last flown? _____

    When was it last modified? _____

    When was it last pull-tested? _____

> **Note:** The NSBF requires strict compliance with the established policy requiring all single-point failure threaded fasteners to be procured from an approved source. Single-point failure fasteners will be tested to confirm that they are manufactured as specified. Refer to Enclosure-4 for a copy of the established policy and approved threaded fastener source list.

21. A thermal analysis is required for all LDB flights. Has a thermal analysis been performed on this instrument and gondola? (YES / NO)

22. Please describe your proposed placement of the SIP onto the gondola to include description of structure used to protect the SIP upon impact. (Please include drawings for illustration. Preliminary hand drawn illustrations are acceptable if that is all you have available at this time.) Annotation of your components adjacent to the SIP along with a description of what they contain, power consumed, thermal coatings, etc. is highly desirable. Refer to Appendix E.

The LDB Telemetry and Electronics Support differs from the conventional support. Please refer to the attached appendices as a guide and reference for completing this section of the flight application form.

23. LDB Telemetry Requirements:

Please place a checkmark in each category for the type of telemetry subsystem you plan to utilize. Currently, the Antarctica Configuration SIP utilizes the TDRSS (COMM1) and HF/ARGOS (COMM2) subsystems. The Mid-Latitude SIP Configuration utilizes the TDRSS (COMM1) and INMARSAT-C (COMM2) subsystems. The Science Stack is normally used for those experimenters who do not have a flight computer of their own with which to interface to the COMM1 and COMM2 science ports (but can be used for redundancy). LOS (Line-Of-Sight) commanding is available through each COMM system over the science ports and to the Science Stack (option). Commanding via the COMM systems is available through the COMM science ports or to the Science Stack.

Science flight computer and ground computer interface requirements are provided in Enclosure 8 and Enclosure 9 respectively. It is understood that the experimenter will arrive at NSBF for pre-campaign integration with interface connectors and proper cable lengths ready for integration. GSE computer and flight computer processing software will also be written, installed, and tested prior to arrival at NSBF.

(For TDRSS SIP configurations, it is an absolute requirement that the experimenter's GSE computer be at Palestine. Experimenter's are responsible for setup and operation of their GSE equipment. For other SIP configurations, the experimenter is encouraged to utilize the capability available at the OCC to supplement the data received at the ROCC.)

LDB SUPPORT INSTRUMENT PACKAGE SUBSYSTEM	CHECK IF YOU INTEND TO USE
TDRSS (Comm 1) High and low rate science port	
HF (Antarctica ONLY) Low-rate science port	
INMARSAT-C (Comm 2) Low-rate science port (mid-latitude ONLY)	
Science-dedicated LOS L-Band/S-Band return TM	
Science-dedicated ARGOS PTT (you control the PTT, refer enclosure 12)	
GSE interface with LDB at the launch site	
GSE interface with LDB at the POCC in Palestine, Texas	
Science stack interface for housekeeping and commands (option) Required if you need open collector discrete commands from the SIP	

24. Do you intend to furnish your own "forward" command system or "return" telemetry system? If so, please provide the following information:

FREQUENCY	PURPOSE (TM/CMD)	DATA RATE	MODULATION	AUTHORIZATION NO.

25. LOS (Line of Site) return telemetry via L-Band or S-Band transmitter is normally offered only during ascent and while within range of the launch site. If you indicated a desire to use this support, please provide the following information:

    Data rate? _____ Coding? (i.e. NRZ, Bi-phase) _____

    (Analog tape recording of LOS return telemetry is standard for all balloon flights.)

    Do you require a PCM decommutator/bit sync? _____

    (PCM encoders are not provided by NSBF.)

26. Please list your flight instruments power requirements (voltage / watts):

    _____

    Do you intend to utilize a PV Power system? (YES / NO)
    (NSBF does not provide PV Power systems for experimenters. However, NSBF can assist you with selection of a vendor for a LDB approved PV Power System.)

    Do you intend to utilize Lithium Batteries for flight use? (YES / NO)

    Do you require the NSBF to purchase your lithium batteries? (YES / NO)

27. List your lithium battery requirements below, to include any batteries you may require for pre-flight ground testing:

Battery	Cells/Pack	Loaded Voltage	Amp-Hour Capacity	Quantity Required
B7901-10	10	26	30	
B7901-11	11	29	30	
B7901-12	12	32	30	
B9660	10	26	8	
B9525	5	14	8	
B1347	5	14	1	
G20-12	1	2.6	8	
G62-12	1	2.6	30	

(Batteries ordered per this request will be held by NSBF only for the fiscal year the flight request is submitted. Should you be required to submit another Flight Application, even though you have not used the batteries from an earlier request, be sure to specify your battery requirements.)

Do you require the lithium batteries during pre-campaign integration at Palestine? (YES / NO)